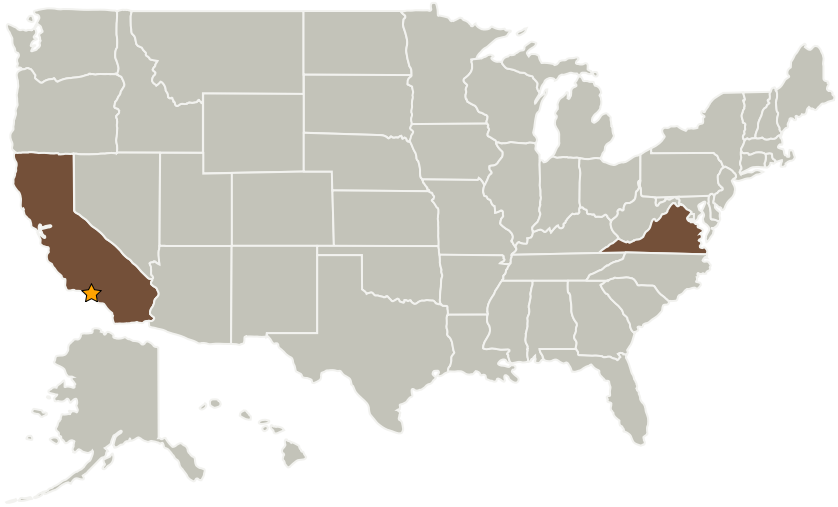
Ge Quantum Dot Infrared Imaging Camera, Phase I

Completed Technology Project (2008 - 2008)

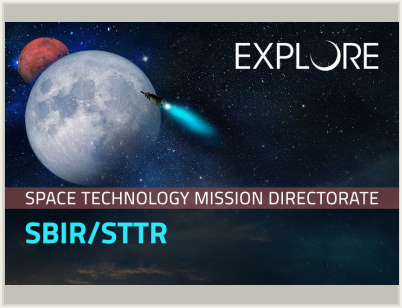
Project Introduction

Luna Innovations Incorporated proposes to develop a high performance Ge quantum dots-based infrared (IR) imaging camera on Si substrate. The high sensitivity, large format imaging camera with a spectral response in the 1-4um region is extremely important for many NASA space and Earth programs. Luna's approach will allow significant reduction in price of the infrared imaging camera, increase pixel count and radiation hardness, reduction of dark current, increase of operation temperature while keeping all other performance metrics competitive with current state of the art technologies. Furthermore, Si substrates is very attractive in IR FPA technology, not only because it is less expensive and available in large area wafers but also because the coupling of the Si substrates with Si readout circuitry in an FPA structure allows fabrication of very large arrays exhibiting long-term thermal cycle reliability.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
Luna Innovations, Inc.	Supporting Organization	Industry	Roanoke, Virginia



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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California	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Roman Ostroumov

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes